IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

CAT TECH INC.,	§	
Plaintiff,	§	
	§	
v.	§	CIVIL ACTION NO. H-07-1163
	§	
TUBEMASTER, INC.,	§	
Defendant.	§	

MEMORANDUM ON CLAIM CONSTRUCTION

This patent case is before the Court for construction of the disputed claim terms in United States Patent No. 6,694,802 ("the '802 Patent"). The Court conducted a hearing pursuant to *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 390 (1996) ("*Markman* hearing"), beginning on February 13, 2008, and continuing on February 20, 2008. Based on the intrinsic evidence before the Court,[1] the arguments presented by counsel, and the governing legal authorities, the Court issues this Memorandum construing the disputed claim terms.

I. FACTUAL AND PROCEDURAL BACKGROUND

Plaintiff Cat Tech LLC ("Cat Tech") is the owner by assignment of the '802 Patent, entitled "Delta P Testing System for Tube and Shell Type Catalytic Reactors."

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[1] Both parties submitted extrinsic evidence. Because the disputed claim terms can be interpreted based only on the intrinsic evidence, the Court did not consider any extrinsic evidence in this case.

In a tube and shell type catalytic reactor such as those used in the production of certain chemical products, there are thousands of tubes that are loaded with catalytic particles. The catalytic particles need to be replaced periodically. After old catalytic particles are removed and the new particles are loaded into the tubes, a differential pressure (or back pressure) test is performed to determine whether the particles were properly loaded.

It is important that the catalytic particles in the reactor tubes are in a fairly uniform state so that the flow through each tube is as similar as possible to the flow through the other tubes. On occasion, catalytic particles may jam together and cause a bridge, under which there is an empty space or "void" in the tube. In other instances, foreign material may be present in the tube, which causes a higher packing density of the catalytic particles. Each of these problems can be detected through the back pressure test.

The '802 Patent describes an apparatus and a method for conducting and tracking differential pressure tests on multiple reactor tubes during a single operational cycle. The prosecution history for the '802 Patent, as relevant to the claim construction issues, is discussed more fully below.

Cat Tech and TubeMaster each offer catalyst handling services that include conducting differential pressure testing of catalyst-loaded reactor tubes. Cat Tech

sued TubeMaster on April 4, 2007, alleging that TubeMaster markets and uses catalytic reactor tube testing equipment and services that infringe the '802 Patent.[2] TubeMaster has denied that its catalyst handling equipment or services infringe Cat Tech's patent. TubeMaster has also asserted that the '802 Patent is invalid and/or unenforceable. The parties have fully briefed the claim construction issues. The Court conducted a *Markman* hearing over two days, and now construes the disputed claim terms as follows.

II. GENERAL LEGAL STANDARDS FOR CLAIM CONSTRUCTION

"It is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (*en banc*) (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)), *cert. denied*, 546 U.S. 1170 (2006). The patent claims in issue must be construed as a matter of law to determine their scope and meaning. *See, e.g., Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 390 (1996), *aff'g*, 52 F.3d 967, 976 (Fed. Cir.) (*en banc*); *Verizon Svcs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1317 (Fed. Cir. 2007).

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[2] In the Original Complaint [Doc. # 1], Cat Tech also alleged that TubeMaster was engaging in activity that infringed another Cat Tech patent, United States Patent No. 6,981,422 ("the '422 Patent"). Cat Tech has dismissed all claims relating to the '422 Patent.

"Claim terms are entitled to a heavy presumption that they carry their ordinary and customary meaning to those skilled in the art in light of the claim term's usage in the patent specification." *Elbex Video, Ltd. v. Sensormatic Electronics Corp.*, 508 F.3d 1366, 1371 (Fed. Cir. 2007) (citing *SuperGuide Corp. v. DirecTV Enters. Inc.*, 358 F.3d 870, 874 (Fed. Cir. 2004) and *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1323 (Fed. Cir. 2003)). The "ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, *i.e.*, as of the effective filing date of the patent application." *Phillips*, 415 F.3d at 1313. This "person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Id.*

For certain claim terms, "the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." *Phillips*, 415 F.3d at 1314 (citing *Brown v. 3M*, 265 F.3d 1349, 1352 (Fed. Cir. 2001)). For other claim terms, however, the meaning of the claim language may be less apparent. To construe those terms, the Court considers "those sources available to the public that show what a person of skill

in the art would have understood disputed claim language to mean . . . . [including] the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art." *Id.*

The claims "provide substantial guidance as to the meaning of particular claim terms." *Id.* The Court may consider the context in which the terms are used and the differences among the claims. *See id.* "Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims." *Id.* Because the claims "are part of a fully integrated written instrument," the Court may also consider the specification and the patent's prosecution history. *Id.* at 1315, 1317. Indeed, the prosecution history can "often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." *Ventana Med. Sys., Inc. v. Biogenex Labs., Inc.*, 473 F.3d 1173, 1182 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1317). The Court examines the patent's prosecution history "to determine whether the inventor disclaimed a particular interpretation of a claim term during the prosecution of the patent in suit . . .. *Id.* (citing *Advanced Cardiovascular Sys. v. Medtronic, Inc.*, 265 F.3d 1294, 1305-

06 (Fed. Cir. 2001)). Application of this prosecution disclaimer doctrine requires that the statements in the prosecution history, read in context and not in isolation, be "both clear and unmistakable" to one of ordinary skill in the art; it does not apply "where the alleged disavowal is ambiguous." *Elbex Video*, 508 F.3d at 1371 (citing *Omega*, 334 F.3d at 1326); *see also Seachange Int'l, Inc. v. C-COR Inc.*, 413 F.3d 1361, 1373 (Fed. Cir. 2005) ("A disclaimer must be clear and unambiguous."); *Slip Track Sys., Inc. v. Metal Lite, Inc.*, 113 F. App'x 930, 938 (Fed. Cir. 2004) (holding that clear and unambiguous statements in prosecution history limited claim); *Biotec Biologische Naturverpackungen GmbH & Co. KG v. Biocorp, Inc.*, 249 F.3d 1341, 1348 (Fed. Cir. 2001) (finding no clear disclaimer because "a person of reasonable intelligence would not be misled into relying on the erroneous statement, for it is contrary not only to the plain language of the claims and the specification, but also to other statements in the same prosecution document"); *Hockerson-Halberstadt, Inc. v. Avia Group Int'l, Inc.*, 222 F.3d 951, 956-57 (Fed. Cir. 2000) (finding disavowal because "reasonable competitor . . . would have no reason to believe that a mistake was made"). Application of prosecution disclaimer "ensures that claims are not construed one way in order to obtain their allowance and in a different way against accused infringers." *Chimie v. PPG Industries, Inc.*, 402 F.3d 1371, 1384 (Fed. Cir. 2005) (citing *Southwall Tech., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1576 (Fed. Cir. 1995)).

The Federal Circuit has emphasized that "there is no magic formula or catechism for conducting claim construction." *Phillips*, 415 F.3d at 1324. "The sequence of steps used by the judge in consulting various sources is not important; what matters is for the court to attach the appropriate weight to be assigned to those sources in light of the statutes and policies that inform patent law." *Id.* (citing *Vitronics*, 90 F.3d at 1582).

III. CONSTRUCTION OF DISPUTED CLAIM TERMS

The parties agree on the proper construction of several terms in the '802 Patent. Consequently, as to these claim terms, there is no controversy and the Court adopts the parties' agreed construction as set forth in the Joint Claim Construction and Prehearing Statement [Doc. # 35].[3] The Court has carefully reviewed the '802 Patent, specifically its claims and specifications, and the prosecution history. The Court also has considered counsels' arguments presented at the *Markman* hearing, and has applied governing Federal Circuit authority. On this basis, the Court construes the following terms in the claims of the '802 Patent.

A. "Mobile Support Device"

[3] The parties also agreed, after the claim construction briefing was complete, that Claim Term 7 on the Joint Claim Construction Chart did not require construction. *See* Letter dated February 20, 2008 [Doc. # 58].

Claims 1, 4, 8, and 14 of the '802 Patent contain the term "mobile support device." Plaintiff argues that the terms means a device that is readily movable between selected positions. Defendant contends that the term should be construed as limited to a "device such as a cart or other device that has mobile support such as wheels, casters or other elements that support the device and allow the cart to move on the upper tube sheet." The Court rejects the argument that the claim term includes a limitation requiring wheels or similar elements, or that the wheels must "support the cart" because there is nothing in the intrinsic evidence to support that argument. The device is referred to as a "support device" because it supports the testing tubes, and the support device must be mobile. The term "mobile" means easily movable. Consequently, the Court construes the term "mobile support device" as used in Claims 1, 4, 8, and 14 of the '802 Patent to mean "a device that can be easily moved between selected positions on the upper tube sheet of a catalytic reactor and that supports the plurality of testing tubes mounted thereto." This construction does not require that the mobile support device maintain contact with the surface of the upper tube sheet as it is moved between positions on that tube sheet.

B. "Selectively Positioned on the Upper Tube Sheet of a Catalytic Reactor in Pressure Testing Relation With a Plurality of Catalyst Filled Reactor Tubes" and "Selectively Positioning on the Upper Tube Sheet"

The claim term "selectively positioned on the upper tube sheet of a catalytic reactor in pressure testing relation with a plurality of catalyst filled reactor tubes" is found in Claims 1, 4, and 14 of the '802 Patent. The claim term "selectively positioning on the upper tube sheet" is found in Claim 8. Each of these two claim terms relates to the placement of the mobile support device. The Court construes the terms to mean that the mobile support device is placed in a chosen position on the upper tube sheet of a catalytic reactor such that the testing tubes supported by the mobile support device are connected to corresponding catalyst-filled reactor tubes in that chosen section of the catalytic reactor.

C. "Simultaneous Testing"

The parties' remaining disputed claim terms all involve the underlying dispute regarding whether the back pressure testing – specifically, placing the air into the reactor tubes and obtaining a measurement of the back pressure – of the multiple tubes attached to the mobile support device at any one time must be accomplished simultaneously, *i.e.*, at the same time, or may be accomplished sequentially, *i.e.*, one tube at a time. Plaintiff argues that the testing of the group of tubes may be done one tube at a time, while Defendant argues that the group of tubes must be tested simultaneously. Both the '802 Patent (including the claims and specification) and its prosecution history are highly relevant to the Court's resolution of this dispute and its

construction of these claim terms. *See, e.g., Phillips*, 415 F.3d at 1314; *Elbex Video*, 508 F.3d at 1371-72. Indeed, the language in the '802 Patent, viewed in isolation, could support Plaintiff's construction. However, the Applicant's repeated disclaimers during the prosecution of the application, as described more fully below, limit the proper construction of the disputed claim terms regarding "simultaneous testing."

Plaintiff's original application for what eventually became the '802 Patent included only seven apparatus claims. The United States Patent and Trademark Office ("PTO") rejected the claims as obvious in light of prior art, including the "Sapoff Patent"[4] and the "Comardo Patent."[5] *See* Office Action, Exh. C to Defendant's Responsive Brief on Claim Construction ("Defendant's Brief") [Doc. # 44].

In its response to the PTO's rejection of the application, the Applicant amended the original seven claims and added new claims. In the "Remarks" section of the Response, the Applicant distinguished the Sapoff Patent as not including a "system for conducting ***simultaneous*** back pressure testing of a plurality of catalyst filled

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[4] The Sapoff Patent covered a modular "multi-tube catalyst loading funnel" to be used to load catalyst material into the reactor tubes. Although the device was designed to control the loading process rather than the testing process, the Sapoff Patent further disclosed "a plurality of testing tubes being mounted on a mobile support" and "a pressure testing gas delivery system being interconnected with a plurality of testing tubes." The Sapoff Patent also mentioned that testing of the reactor tubes would occur after the loading process had been completed.

[5] Comardo is the inventor on both the '802 Patent and the prior art reference relied on by the PTO.

reactor tubes." *See* First Amendment in Response to Office Action, Exh. F to Defendant's Brief, p. 10 (emphasis added). Significantly, the Applicant also stated in response to the PTO's rejection, "[i]n the past, this type of pressure testing has been done one tube at a time" and that "no system has been available, ***until the present invention***, for ***simultaneously*** pressure ***testing a number*** of catalyst tubes . . .." *See id.* at 11 (emphasis added). The Applicant then distinguished the Comardo Patent as covering a mechanism for "simultaneously filling" groups of reactor tubes.[6] *See id.* The Applicant stated clearly and unequivocally to the PTO that none of the cited prior art references "teach or inherently suggest apparatus and methods for ***simultaneously*** accomplishing pressure testing of a plurality of reactor tubes during each operational cycle after the reactor tubes have been charged with catalyst." *See id.* at 12. The Applicant argued for reconsideration of the PTO's rejection of the patent application because the "new method and apparatus claims that are presented herewith each call specifically for a method and method [*sic*] for accomplishing ***simultaneous*** back pressure testing of a plurality of filled reactor tubes during each operational cycle of the apparatus." *See id.* (emphasis added).

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[6] Indeed, the Comardo Patent states in the Abstract that the device accomplishes the "simultaneous, timed delivery of catalyst pellets into a plurality of reactor tubes." *See* Comardo Patent, Exh. E to Defendant's Brief. The Comardo Patent also identifies as a novel feature of the invention the ability to provide "simultaneous charging" of a selected group of reactor tubes with catalyst material. *See id.*, col. 5, lines 42-44.

The PTO again rejected the amended claims as obvious, focusing in part on the timing of the testing of the multiple tubes. The PTO noted that the "Applicant argues that the references do not show or teach that the pressure testing is done ***simultaneously*** for a number of pressure testing tubes. However, the amended claims do not suggest that the pressure testing is done simultaneously[,] only that the testing is selectively done for each tube." *See* Second Office Action, Exh. G to Defendant's Brief, p. 7 (emphasis added). It is clear that the PTO was focused on the Applicant's argument that the cited prior art references were distinguishable because Applicant's device could conduct simultaneous pressure testing on a plurality of reactor tubes.

The Applicant responded by amending the rejected claims to provide that the testing tubes are "simultaneously" – rather than selectively – "positioned in sealed gas pressure communicating engagement with the upper ends of a plurality of reactor tubes." *See* Response to Second Office Action, Exh. H to Defendant's Brief. The Applicant then explained that the amendment was intended to "more clearly bring out the feature of ***simultaneously*** testing a plurality of filled catalyst tubes for differential or back pressure." *See id.* at 13 (emphasis added). Again, the Applicant distinguished the Sapoff Patent as not having a system for "conducting ***simultaneous*** back pressure tests on a plurality of reactor tubes during each cycle of operation." *See id.* at 14 (emphasis added). The Applicant stated unequivocally to the PTO that the prior art

is distinguishable because, while the Sapoff Patent and the Comardo Patent describe a system that is "capable of simultaneously filling a plurality of catalyst tubes," they contain "no teaching or inherent suggestion . . . for ***simultaneously testing a plurality*** of filled reactor tubes through the use of any apparatus . . .." *See id.* at 15 (emphasis added). As in the first response, the applicant again noted that back pressure testing had previously been done "one tube at a time" because "no system has been available, ***until the present invention***, for ***simultaneously*** pressure ***testing a number*** of catalyst tubes . . .." *See id.* (emphasis added). The Applicant thus clearly distinguished between testing "one tube at a time" and "simultaneously pressure testing a number of catalyst tubes."

The Applicant also advised the PTO in response to the Second Office Action that the "present invention enhances the efficiency of reactor servicing, by the provision of a system that accomplishes ***simultaneous*** back pressure testing of a plurality of reactor tubes during each operational cycle." *See id.* at 16 (emphasis added). The Applicant argued that its rejected claims should be allowed, notwithstanding the Sapoff Patent, because that patent does not provide for "conducting ***simultaneous*** back pressure testing of a plurality of catalyst filled reactor tubes, as discussed above in connection with claim 1." *See id.* at 17 (emphasis added). The Applicant advised the PTO that it "is clear that none of the references of record

teach or inherently suggest apparatus and methods for ***simultaneously*** accomplishing pressure ***testing of a plurality of reactor tubes*** during each operational cycle after the reactor tubes have been charged with catalyst. ***Since this feature is present in each of the claims of the present application, as amended herewith***, it is respectfully submitted that all of the claims of this application are allowable." *See id.* (emphasis added). As if there could be any doubt, the Applicant again stated that the "method and apparatus claims that are presented herewith each call specifically for a method or apparatus for accomplishing ***simultaneous*** back pressure ***testing of a plurality of filled reactor tubes*** during each operational cycle of the apparatus." *See id.* at 18 (emphasis added).

The PTO, based on the Applicant's amendments and clear remarks in the Responses, allowed the claims and the '802 Patent issued.

The Court finds that the Applicant during the prosecution of what became the '802 Patent clearly, unambiguously, and unmistakably limited the claims to "accomplishing simultaneous back pressure testing" of the selected group of tubes included in the operational cycle. The Applicant repeatedly so advised the PTO. The PTO identified the distinction between testing simultaneously and testing selectively. The Applicant responded by distinguishing between the prior means of testing catalyst-filled reactor tubes "one tube at a time" and its own system "for

simultaneously pressure testing a number of catalyst tubes."[7] The evidence in the record thus demonstrates that the Applicant, the PTO, and those skilled in the art understood that the claims covered and – to obtain PTO approval – were limited to an apparatus and a method[8] for accomplishing simultaneous back pressure testing of the plurality of reactor tubes being tested in the operational cycle. The Court rejects Plaintiff's argument that "simultaneous testing" means testing several catalyst-filled reactor tubes "one at a time" before moving the mobile support device to another set of tubes.[9] The argument is inconsistent with the Applicant's clear and unequivocal statements during the prosecution history and is inconsistent with the ordinary meaning of the term "simultaneous" as understood by one skilled in the art.

The Court also rejects Plaintiff's argument that the "simultaneous" positioning of the mobile support device on the upper tube sheet constitutes "simultaneous

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7 The Applicant never in its responses identified an alternative of sequential testing within a cycle. Moreover, "simultaneously accomplishing pressure testing" "during each operational cycle" indicates, contrary to Plaintiff's contention, that during each cycle a fixed number of the thousands of tubes in the reactor would be tested simultaneously.

8 The Applicant's response to the PTO's first office action included new claims, including method claims. The first of those method claims, Claim 8, contains the preamble "A method for conducting simultaneous back pressure tests on a plurality of reactor tubes . . .." The method claims were accepted as proposed. *See* discussion, *infra*, concerning Claim 8.

9 Plaintiff during oral argument focused on the distinction between the proposed invention's purpose of testing and the prior art's function of filling the reactor tubes. While relevant, that distinction does not address meaningfully the fundamental fact that the Applicant repeatedly represented in his responses to the PTO that the invention covered by the '802 Patent simultaneously tested a plurality of reactor tubes.

testing." Although the positioning of the mobile support device in the correct location is an important step in preparing to test the reactor tubes, it does not constitute "testing" without the further steps of placing the air into the tubes and obtaining a measurement of the back pressure.

The Court concludes that the claim terms in the '802 Patent are limited by the application of prosecution disclaimer based on the repeated, clear, unmistakable statements by the Applicant to the PTO that the claims provided for testing the tubes "simultaneously" as opposed to "one at a time" as previously accomplished. Indeed, the Applicant stated unambiguously that the "simultaneous testing" feature was present in "each of the claims of the present application" and that the "***method and apparatus claims*** that are presented [in the application] ***each*** call ***specifically*** for a ***method or apparatus*** for accomplishing ***simultaneous*** back pressure testing of a plurality of filled reactor tubes during each operational cycle of the apparatus." Having clearly, unambiguously, and unmistakably during the prosecution history limited its apparatus and method claims to accomplishing "simultaneous" back pressure testing of a plurality of reactor tubes, prosecution disclaimer prevents Plaintiff from arguing now that simultaneous testing is not required. Consequently, the Court construes the remaining disputed claim terms of the '802 Patent as follows.

C(1). "<u>A Plurality of Testing Tubes . . . Being Simultaneously Positioned In Sealed Gas Pressure Communicating Engagement</u>"

This term, contained in Claims 1, 4, and 14, is construed to mean that "the testing tubes on the mobile support device are simultaneously positioned over and sealed with corresponding reactor tubes such that the gas pressure can simultaneously communicate into the reactor tubes to obtain a back pressure measurement."

C(2). "A Method for Conducting Simultaneous Back Pressure Tests On A Plurality of Reactor Tubes"

This language is the preamble to method Claim 8. Generally, preamble language is limiting if it includes an essential element or step or if is needed to give "life, meaning, and vitality" to the claim to which it is a preamble. *See Intirtool, Ltd. v. Texar Corp.*, 369 F.3d 1289, 1295 (Fed. Cir. 2004). The preamble also can be limiting where there was "clear reliance on the preamble during prosecution to distinguish the claimed invention from the prior art." *Id.* In this case, as is discussed above, the Applicant for the '802 Patent argued – in response to the PTO's rejection of the original claims as obvious – that the prior art could be distinguished because it did not provide for simultaneous back pressure testing of a plurality of reactor tubes. The PTO allowed the claims and the '802 Patent issued. Although the PTO did not rely on the preamble language in Claim 8 specifically and separately to allow Claim 8, the PTO clearly relied on the Applicant's unmistakable comments that the method and apparatus claims all included the feature of simultaneous testing. As a result, consistent with the prosecution history and the application of prosecution disclaimer,

the Court construes Claim 8 to require a method for conducting simultaneous back pressure testing on a plurality of catalyst-filled reactor tubes, as opposed to testing the plurality of tubes one at a time.

C(3). "Communicating Test Pressure Simultaneously to Said Plurality of Pressure Testing Tubes And Having a Differential Pressure Monitoring System Providing Back Pressure Measurement Data of Each of Said Plurality of Testing Tubes"

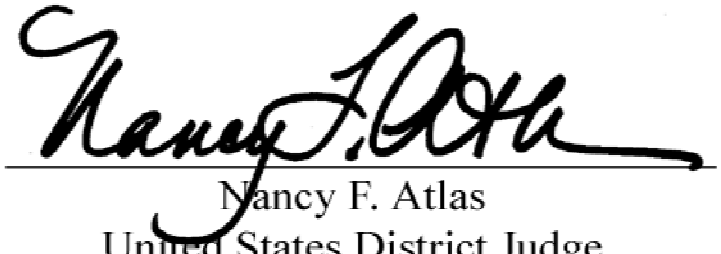
This claim term is contained in Claim 8. Based on the language of the claim and on the doctrine of prosecution disclaimer, the Court construes the term to mean that test pressure is applied simultaneously to the pressure testing tubes and there is a back pressure monitoring system that can simultaneously measure the back pressure data from each plurality of testing tubes.

IV. CONCLUSION

The Court accepts the parties' agreements regarding the proper construction of the agreed terms in the '802 Patent. The Court has considered the intrinsic evidence including the prosecution history. Based on the evidence and the application of governing claim construction principles, including the doctrine of prosecution disclaimer, the Court construes the disputed terms in the claims of the '802 Patent as set forth herein.

The remaining deadlines in the Court's Scheduling Order [Doc. # 19] are still in effect.

SIGNED at Houston, Texas, this **6th** day of **March, 2008**.



Nancy F. Atlas
United States District Judge